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Research Article

Diversity of spiders in Daba Mountain National Nature Reserve, Chongqing, China (II): Two new species of Hahniidae (Arachnida, Araneae)

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Abstract

Two new species of Hahniidae, *Hahnia dabashan* Cai, Wang & Zhang, **sp. nov.** (♂) and *Sinahahnia chengkou* Cai, Wang & Zhang, **sp. nov.** (♂♀), are described and illustrated with photographs and drawings, based on material from Daba Mountain National Nature Reserve in Chongqing, southwestern China.

Key words: Comb-tailed spiders, description, *Hahnia*, morphology, *Sinahahnia*, taxonomy

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Introduction

The spider family Hahniidae is relatively small and almost globally distributed, including 242 extant and 16 fossil species, belonging to 29 extant and four fossil genera, with the highest diversity in Europe and Asia (WSC 2025). In China, 48 species in nine genera are known, with most records confined to southwest regions (WSC 2025). Among these, nine species comprising *Hahnia* (4), *Neoantistea* (3) and *Sinahahnia* (2) are known from Chongqing Municipality (Wang et al. 2010; Zhang and Zhang 2013; Liu et al. 2015; Wang and Zhang 2024; Zheng et al. 2025; Wang and Zhang 2025).

This study is part of a series dealing with the diversity of spiders from Daba Mountain National Nature Reserve (MNNR). Following the description of three new species of *Cicurina* Menge, 1871 (Cicurinidae) (Wang et al. 2024), the present paper describes two new species of Hahniidae from the Reserve.

Material and methods

Specimens were preserved in 75% ethanol and examined, illustrated, photographed and measured using a Leica M205A stereomicroscope equipped with a drawing tube, a Leica DFC450 camera and Leica Application Suite software (ver. 4.6). Male palps and epigynes were examined and illustrated after dissection. Epigynes were cleared in pancreatin (Álvarez-Padilla and Hormiga 2007).

Eye sizes were measured as the maximum dorsal diameter. Prosoma and opisthosoma are measured dorsally. Leg measurements are given as: total length (femur, patella+tibia, metatarsus, tarsus). All measurements are in millimetres. The depository for the material is the Collection of Spiders, School of Life Sciences, Southwest University, Chongqing, China (SWUC). Median apophysis identified here originating from the haematodochal area, follows Burgo et al. (2025), Rubio et al. (2014), Dupérré and Tapia (2024) etc., rather than 'conductor' of Gertsch (1934), Bosmans (1992) and Chu et al. (2023).

Abbreviations used in the text: **ALE**, anterior lateral eye; **AME**, anterior median eye; **MOA**, median ocular area; **PLE**, posterior lateral eye; **PME**, posterior median eye.

Taxonomy

Family Hahniidae Bertkau, 1878

Genus *Hahnia* C. L. Koch, 1841

Type species. *Hahnia pusilla* C.L. Koch, 1841.

Composition. In total, the genus comprises 105 species, among which 26 species are known from China, and four are known from Chongqing: *H. subcorticicola* Liu, Huang & Zhang, 2015, *H. thorntoni* Brignoli, 1982, *H. zhejiangensis* Song & Zheng, 1982 and *H. zhui* Zhang & Chen, 2015 (Wang et al. 2010; Zhang and Zhang 2013; Liu et al. 2015; Zhang and Chen 2015). Here, the fifth *Hahnia* species from Chongqing is described.

Hahnia dabashan Cai, Wang & Zhang, sp. nov.

https://zoobank.org/782830A5-9C32-4B69-A987-158300BDD3DF

Figs 1A–C, 2A–D

Type material. ***Holotype*** • ♂ (SWUC-T-HA-16-01), CHINA, Chongqing Munic., Chengkou Co., Daba MNNR, Longtian Town, Wuli Vill., 32°04.269'N, 108°39.914'E, elev. 1286 m, 16.03.2018, Z.S. Zhang et al. leg. ***Paratypes*** • 4♂ (SWUC-T-HA-16-02~05), same data as for the holotype.

Etymology. The specific name is derived from the type locality (Dabashan = Daba Mountain); noun in apposition.

Diagnosis. The male palp of the new species is similar to that of *H. corticicola* Bösenberg & Strand, 1906 (Liu et al. 2015: 297, fig. 3A–I) in the general shape of the cymbium, embolus, tegulum, and retrolateral tibial apophysis (RTA). It can be distinguished by the following combination of characters: a thorn-like process (TF) on the proximal femur (vs. absent); a flake-like patellar apophysis with a serrated margin (vs. rod-shaped with a hooked tip); and indistinct teeth on the distal retrolateral tibial apophysis (vs. distinct teeth) (Figs 1A–C, 2B–D).

Description. Male holotype (Fig. 2A) total length 1.55. Prosoma 0.78 long, 0.62 wide; opisthosoma 0.84 long, 0.61 wide. Carapace yellowish brown, with few black setae. Eye sizes and interdistances: AME 0.02, ALE 0.05, PME 0.05, PLE 0.0.05; AME–AME 0.02, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.02, ALE–PLE 0.01. MOA 0.13 long, front width 0.06, back width 0.13. Clypeus

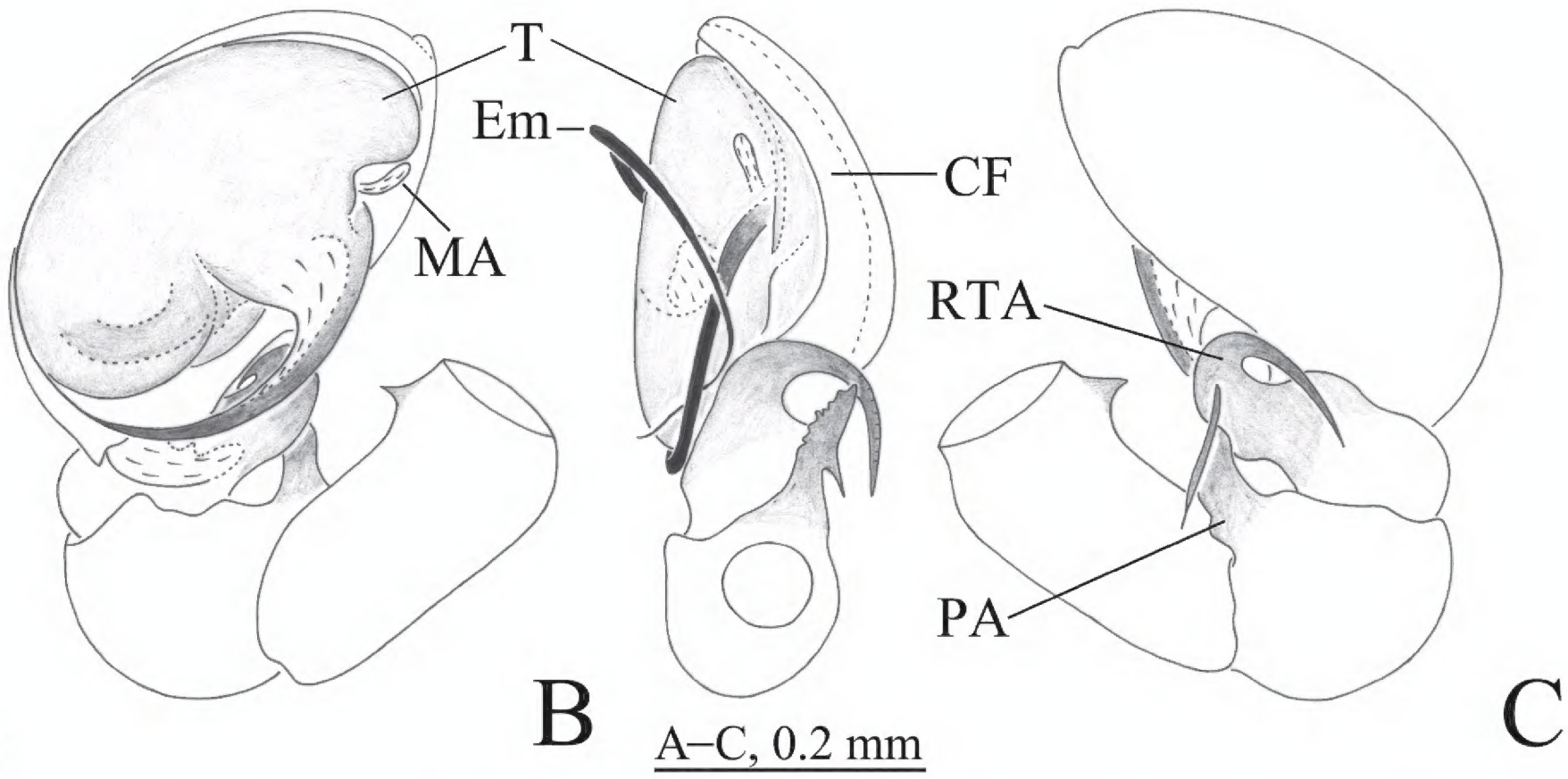

Figure 1. *Hahnia dabashan* sp. nov., male holotype (**A, C**) and paratype (**B**). **A.** Left male palp, ventral view; **B.** Same, retrolateral view; **C.** Same, dorsal view. Abbreviations: CF = cymbial furrow; Em = embolus; MA = median apophysis; PA = patellar apophysis; RTA = retrolateral tibial apophysis; T = tegulum.

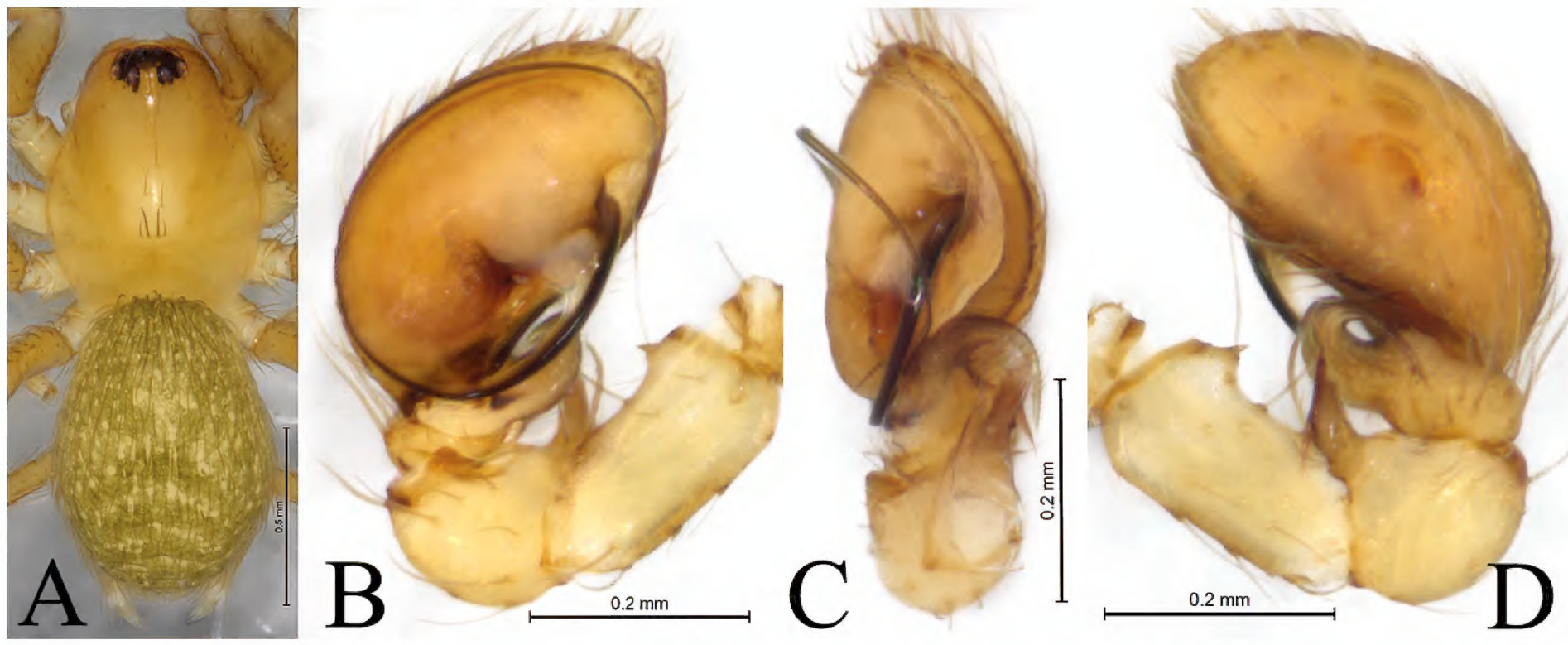

Figure 2. *Hahnia dabashan* sp. nov., male holotype (**A, B, D**) and paratype (**C**). **A.** Male habitus, dorsal view; **B.** Left male palp, ventral view; **C.** Same, retrolateral view; **D.** Same, dorsal view.

height 0.08. Chelicerae yellowish brown, with 2 promarginal and 4 retromarginal teeth. Endites yellowish brown. Labium yellowish brown, wider than long. Leg measurements: I 1.63 (0.50, 0.56, 0.31, 0.26); II 1.55 (0.47, 0.50, 0.31, 0.27); III 1.35 (0.37, 0.45, 0.27, 0.26); IV 1.83 (0.50, 0.64, 0.38, 0.31). Opisthosoma oval, dorsum yellowish brown, dorsally with 3 light chevrons, venter yellowish brown.

Palp (Figs 1A–C, 2B–D). Femur proximal end with thorn-like outgrowth; patellar apophysis (PA) flake-like, 3 times longer than wide in retrolateral view; distal part of retrolateral tibial apophysis (RTA) extending dorsally then proximally; cymbium c. 1.7 times longer than wide, with deep, long (as long as cymbium) and semi-transparent retrolateral furrow; embolus originating mid-retrolaterally (c. 3 o'clock position), clockwise curved along cymbial margin, then inside

cymbial furrow in the left male palp; tip of embolus embedded in a transparent pocket. Median apophysis (MA) located near base of embolus.

Female unknown.

Variation. Males (*N* = 5) total length 1.55–1.75.

Distribution. Known only from the type locality in Chongqing, China.

Genus *Sinahahnia* Wang & Zhang, 2024

Type species. *Sinahahnia eyu* Wang & Zhang, 2024.

Composition. Three species, all described from China, with two from Chongqing: *S. eyu* Wang & Zhang, 2024 and *S. yintiaoling* Wang & Zhang, 2024 (Wang and Zhang 2024). Here, the third *Sinahahnia* species from Chongqing is described.

Sinahahnia chengkou Cai, Wang & Zhang, sp. nov.

https://zoobank.org/6EC7A5EA-3B6F-46F9-B1C3-CA169719439A

Figs 3A–E, 4A–G

Type material. ***Holotype*** • ♂ (SWUC-T-HA-17-01), CHINA, Chongqing Munic., Chengkou Co., Daba MNNR, Longtian Town, Wuli Vill., 32°04.269'N, 108°39.914'E, elev. 1286 m, 16.03.2018, Z.S. Zhang et al. leg. ***Paratypes*** • 2♂9♀ (SWUC-T-HA-17-02~12), same data as holotype • 1♂ (SWUC-T-HA-17-13), Wuli Vill., 32°03.726'N, 108°40.351'E, elev. 1206 m, 16.03.2018, Z.S. Zhang et al. leg. • 1♂2♀ (SWUC-T-HA-17-14~16), Wuli Vill., 32°04.443'N, 108°39.278'E, elev. 1264 m, 16.09.2012, L.Y. Wang, X.K. Jiang leg. • 2♀ (SWUC-T-HA-17-17~18), Xiuqi Town, Xumu Vill., 31°54.484'N, 109°03.556'E, elev. 1670 m, 27.03.2013, X.K. Jiang and X.W. Meng leg.

Etymology. The specific name is derived from the type locality; noun in apposition.

Diagnosis. The new species resembles *S. eyu* (Wang and Zhang 2024: 251, figs 2, 3C–G, 4B, C) in having a bifurcated patellar apophysis, long, slender embolus, large, membranous median apophysis, and long, spiral copulatory ducts, but differs from the latter by the curved retrolateral tibial apophysis (*vs* twisted with small thorns), the finger-shaped retrolateral patellar apophysis (*vs* absent; Figs 3A–C, 4C–E), and cordate spermathecae (*vs* reniform; Figs 3E, 4G).

Description. Male holotype (Fig. 4A) total length 2.15. Prosoma 1.01 long, 0.80 wide; opisthosoma 1.18 long, 0.84 wide. Carapace yellowish brown. Fovea longitudinal. Eye sizes and interdistances: AME 0.02, ALE 0.07, PME 0.07, PLE 0.09; AME–AME 0.02, AME–ALE 0.01, PME–PME 0.04, PME–PLE 0.02, ALE–PLE 0.01. MOA 0.16 long, front width 0.06, back width 0.19. Clypeus height 0.12. Chelicerae yellowish brown, with 2 promarginal and 4 retromarginal teeth. Endites yellowish brown. Labium yellowish brown. Sternum yellowish brown. Leg measurements: I 2.85 (0.81, 0.91, 0.60, 0.53); II 2.61 (0.77, 0.83, 0.53, 0.48); III 2.08 (0.70, 0.49, 0.44, 0.45); IV 3.07 (0.89, 0.93, 0.72, 0.53). Opisthosoma oval, dorsum yellowish brown, dorsally with 6 light chevrons, venter yellowish brown.

Palp (Figs 3A–C, 4C–E). Femur unmodified. Patella with 2 apophyses – proximal and distal: proximal one (PA) curved, short, with 2 tips, one of them twice larger than other; distal apophysis (DPA) finger-shaped. Tibia slightly shorter

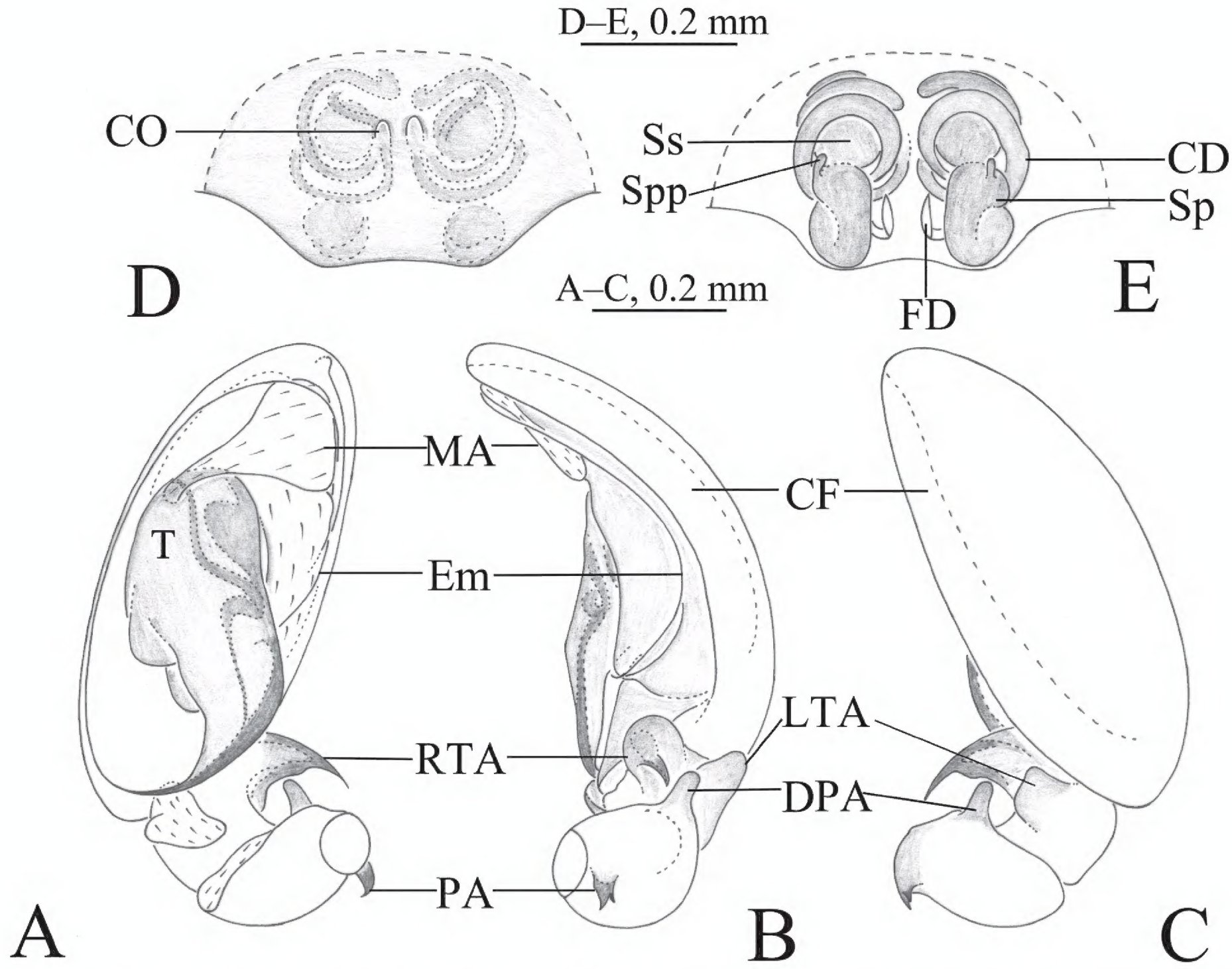

Figure 3. *Sinahahnia chengkou* sp. nov., male holotype (**A–C**) and female paratype (**D–E**). **A.** Left male palp, ventral view; **B.** Same, retrolateral view; **C.** Same, dorsal view; **D.** Epigyne, ventral view; **E.** Same, dorsal view. Abbreviations: CD = copulatory duct; CF = cymbial furrow; CO = copulatory opening; Em = embolus; FD = fertilization duct; LTA = lateral tibial apophysis; MA = median apophysis; PA = patellar apophysis; RPA = retrolateral patellar apophysis; RTA = retrolateral tibial apophysis; Sp = spermatheca; Spp = spermathecal protuberance; Ss = secondary spermatheca; T = tegulum.

than patella, with 2 apophyses: retrolateral apophysis (RTA) curved retrolaterally, with intumescent base and spine-like tip; lateral apophysis (LTA) with blunt end, slightly wider than tall in dorsal view. Cymbial furrow (CF) almost as long as cymbium. Tegulum longer than wide. Embolus with wide embolic base, originating at 6-o'clock position, silk-like, curved clockwise (in left palp) as whole circle, its tip staying inside of cymbial furrow near embolic base. Distal part of median apophysis (MA) almost 7 times wider than its base; sperm duct distinct in tegulum and embolic base, curved inside of embolic base.

Female paratypes total length 2.00–2.47. Paratype (SWUC-T-HA-09-02, Fig. 4B) total length 2.13. Prosoma 0.87 long, 0.63 wide; opisthosoma 1.26 long, 0.95 wide. Carapace yellowish brown. Eye sizes and interdistances: AME 0.03, ALE 0.07, PME 0.07, PLE 0.08; AME–AME 0.02, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.02, ALE–PLE 0.01. MOA 0.14 long, front width 0.07, back width 0.18. Clypeus height 0.08. Leg measurements: I 11.38 (3.09, 4.21, 2.50, 1.58); II 10.85 (3.04, 3.83, 2.43, 1.55); III 11.19 (2.95, 3.62, 3.09, 1.53); IV 16.17 (3.90, 5.11, 5.10, 2.06).

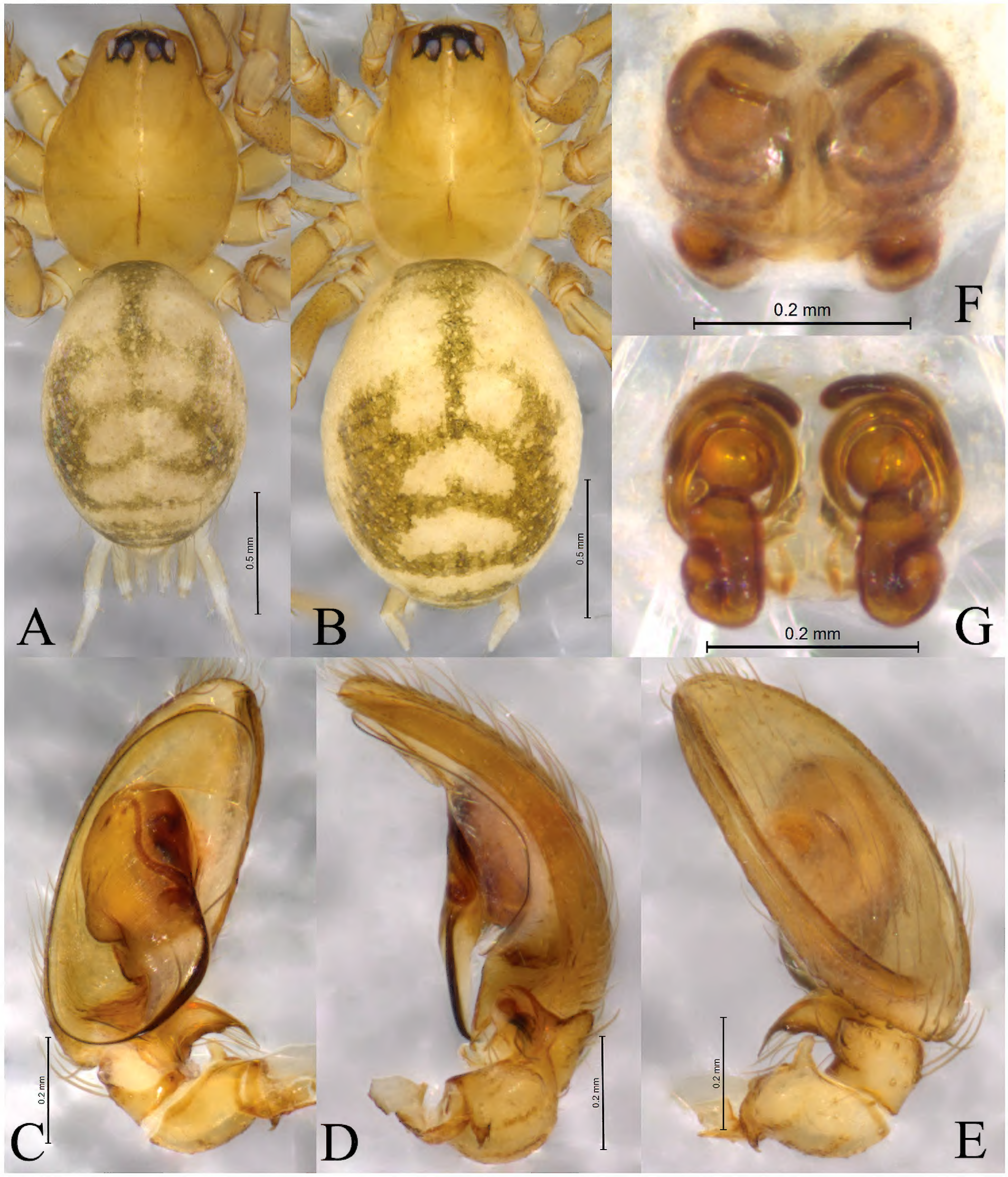

Figure 4. *Sinahahnia chengkou* sp. nov. male holotype (**A, C–E**) and female paratype (**B, F, G**). **A.** Male habitus, dorsal view; **B.** Female habitus, dorsal view; **C.** Left male palp, ventral view; **D.** Same, retrolateral view; **E.** Same, dorsal view; **F.** Epigyne, ventral view; **G.** Same, dorsal view.

Epigyne (Figs 3D–E, 4F–G). Plate as long as wide; copulatory opening (CO) small located slightly mid-anteriorly; copulatory duct (CD) thin, long, wrapped 3 times around secondary spermathecae (Ss); secondary spermatheca small, located anteriorly; spermatheca (Sp) about 1.5 times longer than wide, folded in half, as large as secondary spermatheca, with a small protuberance

antero-laterally (Spp); spermathecae spaced slightly wider by one width, but narrower than the length of it.

Variation. Males (*N* = 5) total length 2.08–2.22, females (*N* = 13) total length 2.00–2.47.

Distribution. Known only from the type locality in Chongqing, China.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Use of AI

No use of AI was reported.

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Author contributions

All authors have contributed equally.

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Data availability

All of the data that support the findings of this study are available in the main text.

References

Álvarez-Padilla F, Hormiga G (2007) A protocol for digesting internal soft tissues and mounting spiders for scanning electron microscopy. The Journal of Arachnology 35(3): 538–542. https://doi.org/10.1636/Sh06-55.1

Bosmans R (1992) Spiders of the family Hahniidae from Sulawesi, Indonesia with remarks on synonymy and zoogeography (Arachnida: Araneae: Hahniidae). Belgian Journal of Zoology 122: 83–91.

Burgo A, Catley K, Grismado CJ, Dupérré N, Benjamin SP, Hormiga G, Griswold C, Martínez L, Ramírez MJ (2025) Systematics of the colour-polymorphic spider genus *Cybaeolus*, with comments on the phylogeny of the family Hahniidae (Araneae). Zoological Journal of the Linnean Society 203(1, zlae165): 1–45. https://doi.org/10.1093/zoolinnean/zlae165

Chu C, Lin YJ, Li SQ (2023) New genera and new species of Hahniidae (Araneae) from China, Laos, Myanmar, and Vietnam. ZooKeys 1187: 91–134. https://doi.org/10.3897/zookeys.1187.112936

Dupérré N, Tapia E (2024) First record of the family Hahniidae in Ecuador with description of thirteen new species and three new genera (Araneae: Hahniidae). Taxonomy 4(1): 53–111. https://doi.org/10.3390/taxonomy4010005

Gertsch WJ (1934) Some American spiders of the family Hahniidae. American Museum Novitates 712: 1–32.

Liu N, Huang GQ, Zhang ZS (2015) A new species of the genus *Hahnia* (Araneae: Hahniidae) from south China. Zootaxa 3994(2): 295–300. https://doi.org/10.11646/zootaxa.3994.2.10

Rubio GD, Lo-Man-Hung NF, Iuri HA (2014) A revision of the Neotropical genus *Austrohahnia* Mello-Leitão (Araneae, Hahniidae). Zootaxa 3894(1): 106–116. https://doi.org/10.11646/zootaxa.3894.1.8

Wang LY, Zhang ZS (2024) A new genus and three new species of Hahniidae (Araneae) from China. ZooKeys 1197: 249–259. https://doi.org/10.3897/zookeys.1197.119935

Wang LY, Zhang ZS (2025) Two new species of the genus Neoantistea (Araneae: Hahniidae) from Northeast of Chongqing, China. Zootaxa 5652(1): 136–143. https://doi.org/10.11646/zootaxa.5652.1.15

Wang LY, Li ZX, Zhang ZS (2010) Preliminary study on the spider diversity of the Jinyun Mountain National Natural Reserve. Acta Arachnologica Sinica 19(2): 120–124.

Wang LY, Mu YN, Yang LX, Zhang ZS (2024) Diversity of spiders in Daba Mountain National Nature Reserve, Chongqing, China (I), three new *Cicurina* species of Cicurinidae (Araneae). ZooKeys 1219: 61–72. https://doi.org/10.3897/zookeys.1219.137354

WSC (2025) World Spider Catalog. Version 26. Natural History Museum Bern. https://doi.org/10.24436/2 [Accessed on: 2025-8-14]

Zhang ZS, Chen HM (2015) *Hahnia zhui* sp. nov. (Hahniidae), a special species with a unique shape of tegulum. Acta Arachnologica Sinica 24(2): 70–75. https://doi.org/10.3969/j.issn.1005-9628.2015.02.002

Zhang ZS, Zhang YG (2013) Synonymy and misidentification of three *Hahnia* species (Araneae: Hahniidae) from China. Zootaxa 3682(4): 521–533. https://doi.org/10.11646/zootaxa.3682.4.3

Zheng CB, Mu YN, Wang LY (2025) A new species of *Neoantistea* Gertsch, 1934 from Yintiaoling National Nature Reserve, Chongqing, China (Araneae, Hahniidae). Biodiversity Data Journal 13: e155306. https://doi.org/10.3897/BDJ.13.e155306